SAVING COGHLAN CASTLE

By Lorraine A. Manz

Introduction

Built between 1906 and 1909, Coghlan Castle (fig. 1) is a large fieldstone farmhouse located on private property approximately five miles north of the town of Rolla in Rolette County, North Dakota (Quinnell and Bentley, 2008). The house was built for Maurice Coghlan, an Irish-born entrepreneur from Boston, to house himself and his family on land he formally homesteaded in 1889 and 1890. It remained occupied until 1948 when the prohibitive cost of heating this large, essentially uninsulated stone structure forced the then owners to move out.

(S.L. Quinnell, written commun., 2008). The house is beautifully and skillfully built in a style resembling Richardson Romanesque (but lacking the essential rounded arches) with massive, rough-cut stone walls, deeply recessed windows, a turret and turret-like extensions. The two-foot-thick walls are infilled with cemented fieldstone rubble and are supported by a full stone basement. Portions of the exterior stonework still display evidence of tuckpointing, a mortaring technique designed to create the illusion of regular, rectangularly jointed stonework.

Figure 1. Known until the 1970s as simply Coghlan's farm or Coghlan's place, Coghlan Castle was built by highly skilled Scottish masons almost 120 years ago.

While fieldstone buildings are fairly common in the Turtle Mountain Region of North Dakota and southern Manitoba, Coghlan Castle is unique in that it is the only known example in North Dakota of a regional variation of a fieldstone construction technique found mostly in southwest Manitoba

Although structurally intact for the most part, the interior of the house has been stripped of almost everything portable, including the ornate woodwork that decorated some of the downstairs rooms. Sometime during the 1960s the main staircase and parts of the floor and an adjacent wall were

destroyed by fire leaving a narrow back stairway as the only access to the second floor.

The roof, the exterior walls of the building and a portion of the basement are in serious need of repair. Several years ago a number of stones were removed from the south wall and taken off the property. Although they have since been returned the wall has not been rebuilt. Of more serious concern however, is the northwestern corner of the basement, which has collapsed leaving the rooms above unsupported. Stabilization and reconstruction of this part of the house is paramount if further structural damage is to be averted.

Figure 2. Map of North America showing the extent of the Laurentide ice sheet at about 15,000 years B.P. Arrows indicate directions if ice movement and the general source locations of sediment.

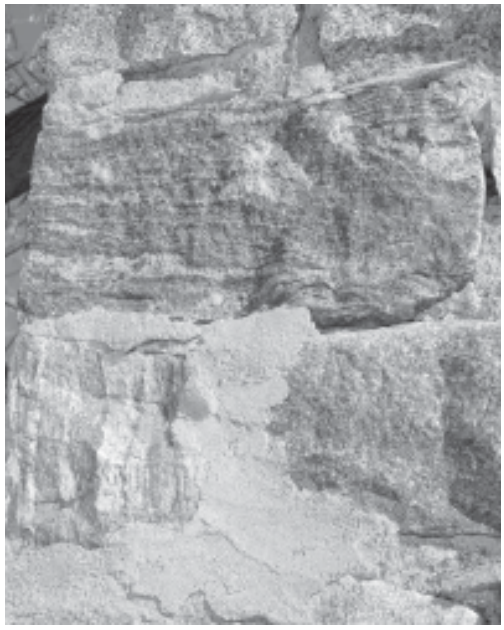
Coghlan Castle was placed on Preservation North Dakota's 3 Most Endangered Properties List in 2003. Shortly thereafter, a local affiliate of Preservation North Dakota (PND) – Save Coghlan Castle, Inc. - was formed to develop a plan for its restoration. In 2007 a Prairie Places Grant from PND and a Cultural Heritage Grant from the State Historical Society of North Dakota were awarded to the project to help begin restoration efforts. A National Register of Historic Places nomination is currently in process.

Source of the Fieldstones

Coghlan Castle is located at the northern end of the Devils Lake Basin, a local physiographic region characterized by thick (up to 600 feet) glacial sediments and a rolling, stratigraphically intricate landscape that was formed about 12,000 years ago towards the end of the last major North American glaciation (Late Wisconsinan glaciation) of the Pleistocene Epoch. To the west lie the Turtle Mountains, an erosional outlier cored by Cretaceous-age rocks of the Fox Hills and Hell Creek formations and the Paleocene Cannonball Formation. Like the surrounding lowlands the Turtle Mountains were also glaciated; so with the exception of some isolated outcrops, these rocks are buried beneath a thick covering of glacial sediment.

North Dakota's Pleistocene sediments comprise a complex, unconsolidated sequence of stratified clay, silt, sand, and gravel interbedded with a heterogeneous mixture of sandy, silty clay, gravel, pebbles, cobbles, and boulders of varying shapes and sizes (till). Lithologically these materials consist of Precambrian granites, gneisses, and basalts (crystalline rocks) derived from geologic provinces of the Canadian Shield, limestones and dolomites from Paleozoic formations flanking the Canadian Shield, and Cretaceous shale from eastern North Dakota and southern Manitoba (fig. 2).

Sediment that is deposited by, and beneath, a glacier is called till. Till is an unsorted, unstratified assemblage of rock debris ranging in particle size from clay to boulders larger than an automobile. These boulders (also known as erratics) are a common sight throughout the glaciated plains of North Dakota and would have provided an abundant source of raw material for the stonemasons who built Coghlan Castle. It is worth noting here that there are no exposures or easily



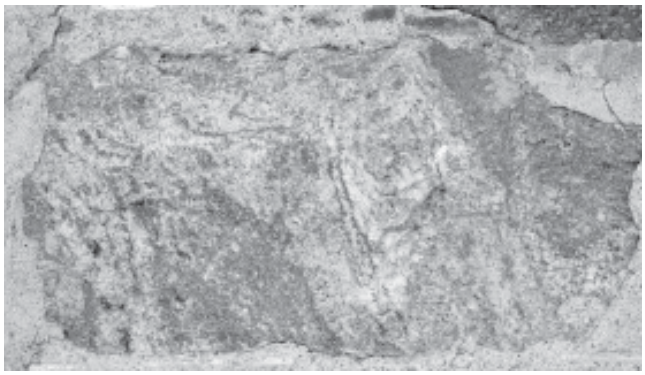


Figure 3. Gneisses consisting of well-defined bands of light (e.g. quartz and feldspar) and dark (e.g. biotite and hornblende) mineral assemblages. The irregularity of the banding, which may also be folded (deformed), makes these very hard rocks difficult to shape into blocks or slabs. Gneisses are formed deep inside the earth's crust under conditions of heat and pressure sufficient to soften, but not melt, the rock. These gneisses were once part of the "roots" of an ancient mountain range that hundreds of millions of years of erosion have worn away. Today they outcrop extensively over vast areas of the Canadian Shield.

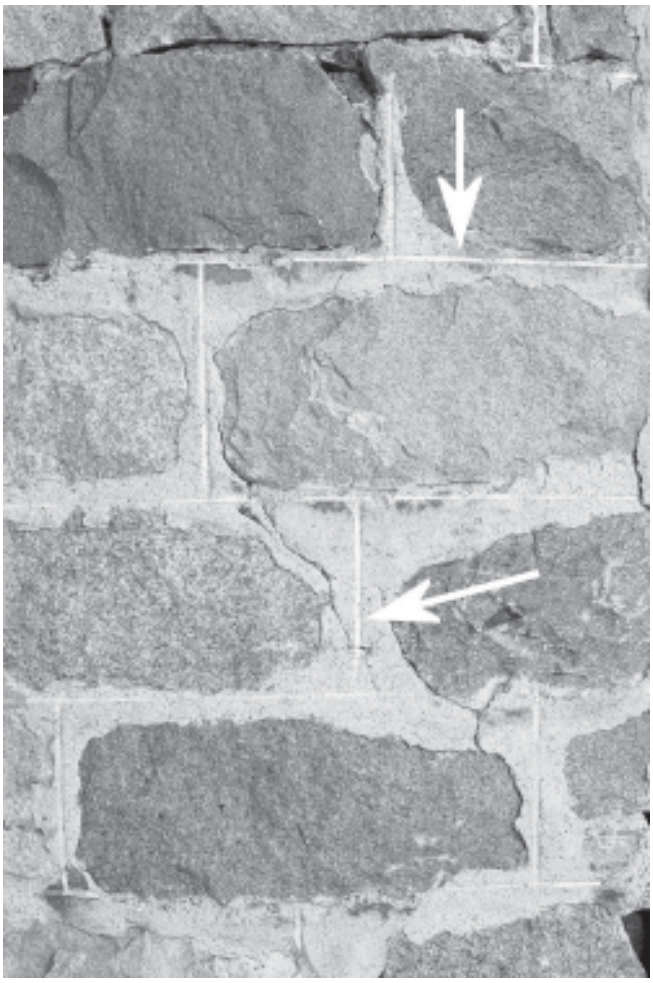
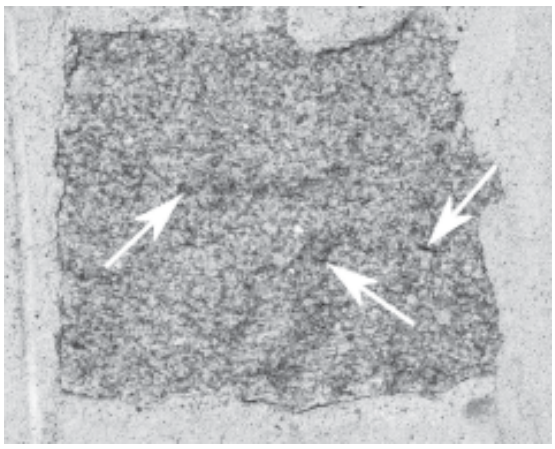


Figure 4. Some examples of the wide variety of granitoid (granite-like) rocks found in the walls of Coghlan Castle. These rocks consist mainly of crystalline quartz and feldspar. The pinkish coloration indicates the presence of the potassium-rich feldspar orthoclase. Note the large crystals (phenocrysts) of this mineral in the above photo. The dark (ferromagnesian) minerals (below) include biotite mica and hornblende. Note the tuckpointing between the stones (left).



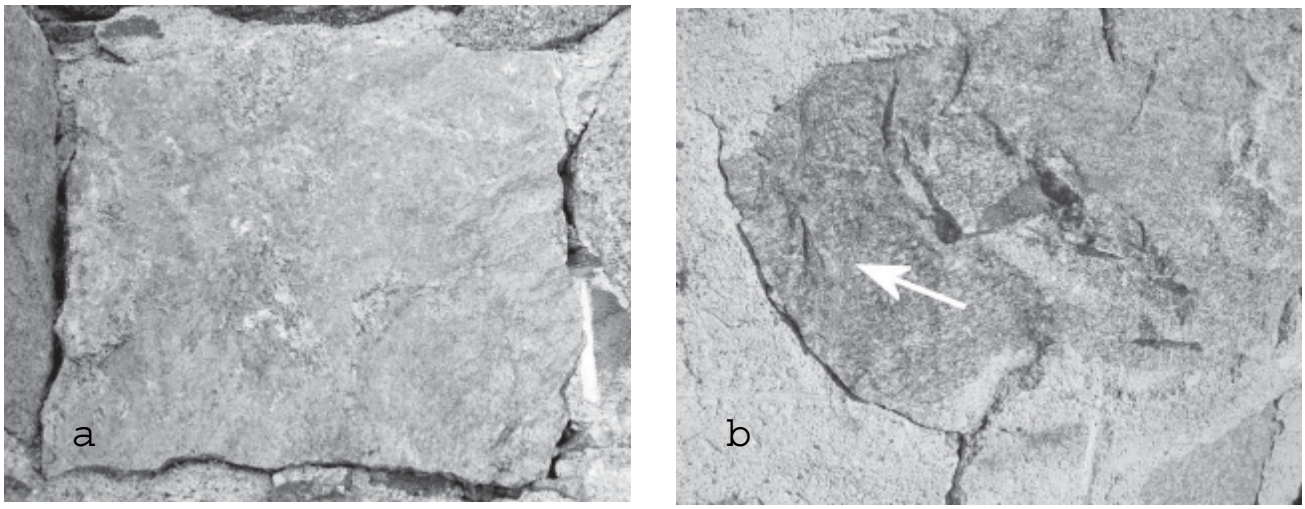


Figure 5. a. Epidote (top) is a mineral that may often be characterized by its pistachio green color. Several of the stones in the walls of Coghlan Castle have a surface "coating" of epidote that evidently show where the stonemason chose to split the original rock along a vein. Veins are fractures that have been filled in by mineral deposits, in this case, epidote; and as such form natural planes of weakness in their host rock. The Precambrian granite boulders that glaciers plucked from the Canadian Shield and carried to North Dakota are extremely hard and unyielding. So it is reasonable to assume that the masons who worked them would have taken advantage of any cracks, fissures, mineral veins or other indicators of weakness they could find. b. An epidote vein running through a piece of granite.

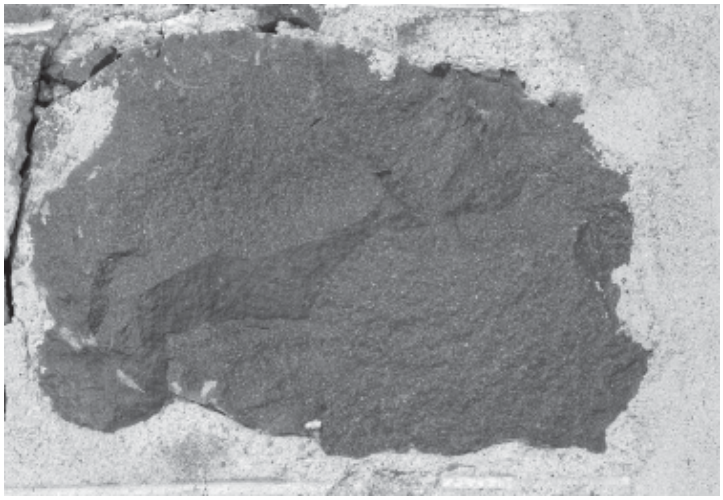


Figure 6. Unlike granite, which cools slowly and solidifies at depth, basalt is volcanic in origin. Typically fine-grained and dark gray or black in color it occurs as lava flows or volcanic cones and cools quickly. The basalts of the Canadian Shield are mostly flood basalts – horizontal or subhorizontal plateaus formed by the accumulation of vast amounts of basaltic lava that erupt from deep fissures in the Earth's crust. This piece of basalt probably came from lava flows that spread across a region north of Lake Superior about 1.3 billion years ago.

accessible sources of native igneous or metamorphic rocks in North Dakota. They are deeply buried beneath a minimum of several hundred feet of sediment and sedimentary rock in eastern North Dakota and up to 16,000 feet in the western part of the state. Unless they were transported to the site by anthropogenic means, it is therefore safe to assume that all the crystalline fieldstones used in the construction of the house came from glacial erratics.

Although glacial erratics are a relatively new addition to the North Dakota landscape, many of the rocks themselves are ancient. The Canadian Shield is a vast, roughly circular or shield-shaped region of exposed bedrock that covers much of Greenland, eastern and central Canada, and parts of northern Minnesota, Michigan, New York, and Wisconsin. The shield is the heart of the North American Craton, the geologically stable portion of the earth's crust upon which the North American continent is built. As such, the igneous and metamorphic rocks of the Canadian Shield were some of the first to form as the molten surface of the young Earth began to solidify between about 4.5 and 0.5 billion years ago. During this time the Canadian Shield was a region of intense mountain-building and volcanic activity that gradually subsided as the primeval crust grew and eventually stabilized.

The deeply eroded and ice-scoured landscape that typifies much of the Canadian Shield today is a testimony to its violent past. The gneisses and granites are the remnants of high Precambrian mountains that may once have rivaled the modern Himalayas. The folded bands of light and dark minerals in the gneisses (fig. 3), the coarse, crystalline texture of some of the granites (fig. 4) and certain mineral assemblages (fig. 5) are all indicative of deep burial, heat and pressure. Black, fine-grained basalts (fig. 6) are evidence of volcanism.

In addition to the diversity of crystalline (igneous and metamorphic) rocks, the walls of Coghlan Castle also contain a small number of sandstone blocks. They are well-indurated, clean-looking, slightly calcareous and either buff or reddish yellow (salmon pink) in color. They are probably local. Former State Geologist John Bluemle, who mapped the surface geology of Bottineau County during the mid-1980s (Bluemle, 1985), noted exposures of sandstone and siltstone belonging to the Cretaceous-age Hell Creek Formation on the southwestern flank of the Turtle Mountains between Carbury and the Canadian border. Although he has not visited Coghlan Castle, Dr. Bluemle has seen stone buildings in Bottineau and Dunseith that include pieces of pinkish sandstone and is reasonably sure that they are from the Hell Creek Formation (J.P. Bluemle, written commun., 2008). It is highly probable, therefore, that the sandstone blocks at Coghlan Castle are the same material.

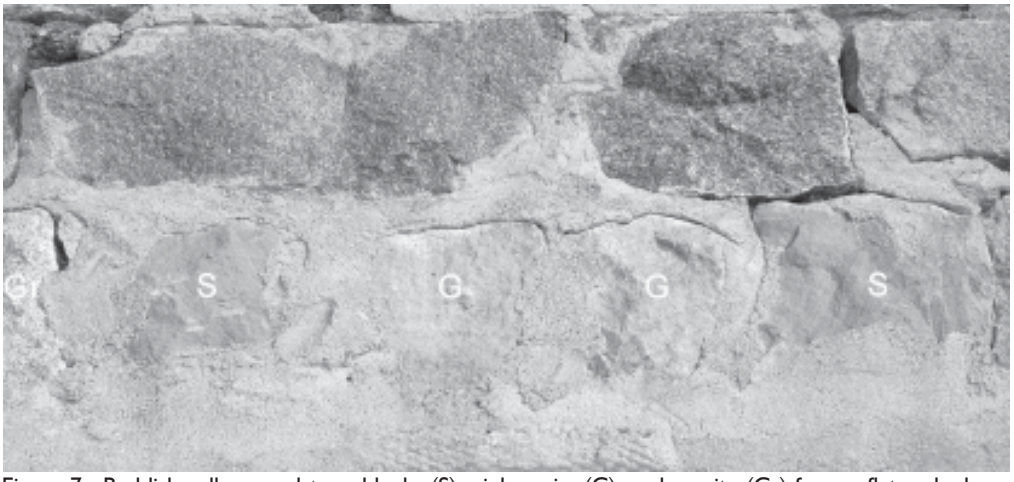


Figure 7. Reddish yellow sandstone blocks (S), pink gneiss (G), and granite (Gr) form a flat arch above what was once a stained-glass picture window.

Two pieces of reddish yellow sandstone are included in a row of half-a-dozen blocks laid directly above a large picture window in the west wall (figs. 1 and 7). They are flanked by pink gneiss and granite, and the grouping appears to be deliberate, the whole forming a decorative flat arch.

Worth saving?

Despite its dilapidated condition there are several reasons why Coghlan Castle is worth saving. The first is its uniqueness: there are more that 60 known examples of this architectural style in southern Manitoba but Coghlan Castle seems to be the only one of its kind in North Dakota. Its level of craftsmanship and attention to detail, inside and out, is exceptional. Moreover, the entire building is original. It has not been altered, extended, or modernised in any way since its completion in 1909. Coghlan Castle is an early 20th century survivor and, like the family after which it is named, an important contributor to North Dakota's settlement and economic history. For all these reasons it deserves recognition.

If you would like to know more about Coghlan Castle, call Becky Leonard on 701 477 3149, or visit the Prairie Places website at http://www.prairieplaces.org/. Please remember that the house is on private property and is not open to the public.

Finally…

As this article goes to press construction crews are busy stabilizing and rebuilding the collapsed portion of Coghlan Castle's basement. And on July 18th the National Park Service officially placed the house on the National Register of Historic Places. For more information go to http://www.nps.gov/history/nr/nrlist.htm.

References

Bluemle, J.P., 1985, Geology of Bottineau County, North Dakota: North Dakota Geological Survey Bulletin 78, part 1, 57 p.

Quinnell, S.L., and Bentley, D., 2008, Hope Remains Strong for Coghlan Castle: The North Dakota Architect - Official Publication of AIA North Dakota, v. 2, p. 66-69.

Note: All the illustrations for this article may be viewed in color on the NDGS website at https://www.dmr.nd.gov/ndgs/newsletter/newsletter.asp.